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## Case study

# Promoting Internet development: the case of Argentina

Ben A. Petrazzini<sup>a,\*</sup>, Agustina Guerrero<sup>b</sup>

<sup>a</sup>*Strategic Planning Unit, International Telecommunication Union Geneva, Switzerland*

<sup>b</sup>*Information Technology Unit, Buenos Aires Economico, Buenos Aires, Argentina*

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## Abstract

Only a few years ago Argentina had a very low Internet penetration compared with its neighbouring countries in Latin America. In 1993, for example, the country had only 0.05 Internet hosts per 10,000 people, while Chile had as many as 1.01 (Brazil had 0.27, Mexico had 0.40 and Venezuela 0.23). By July 1999, however, the situation had changed in some fundamental ways. While countries like Chile and Brazil had 25 Internet hosts per 10,000 people, Argentina was enjoying the presence of almost 39 Internet hosts per 10,000 people. The number of estimated users had climbed from some 70,000 in late 1996 to more than 900,000 in mid-1999; while the number of Internet accounts had grown almost nine fold, from 40,000 in late 1996 to some 348,000 in mid-1999. The poor market prospect that reigned in the early days of the Internet had certainly been reversed. Argentina became, by late 1999, the country with the highest Internet host density among the large economies of Latin America.

A number of obvious questions come to mind when confronted with this puzzle: How can it be that in a short period of time the country reversed the situation in which it was in 1993? What happened between 1993 and 1999 that the number of connections to the Internet grew more than 255 percent a year, shooting the hosts density from 0.05 to 39 Internet hosts per 10,000 people? This case study attempts to provide some clues to the Internet growth puzzle in Argentina. Most analysts would agree that changes in market structure and profile are not the product of a single factor. This paper argues, however, that the Internet boom in Argentina lies mainly on two main policy decisions: (a) the reduction in the price of leased lines and (b) the reduction of tariffs for local calls through the creation of a special dialling scheme for Internet-related calls. The paper pays special attention to these regulatory changes, their impact on the evolution of the Internet in Argentina, and the subsequent benefits that the Net has brought to both businesses and consumers. © 2000 Elsevier Science Ltd. All rights reserved.

**Keywords:** Internet development; Argentina

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\* Corresponding address: Strategic Planning Unit, International Telecommunication Union, Peru 103 (piso 8), 1067 Buenos Aires, Argentina.

E-mail address: [ben.petrazzini@itu.int](mailto:ben.petrazzini@itu.int) (B.A. Petrazzini), [agustina@baedigital.com.ar](mailto:agustina@baedigital.com.ar) (A. Guerrero)

## 1. Introduction

The first commercial Internet services were launched in Argentina in mid-1995. A few months later the Internet entered the public discourse of the local mass media and was feeding the public imagination with its huge, almost unbound, potential for handling information and communication services.

In spite of all the enthusiasm that the Internet generated, the country would have to climb a steep hill to reach similar levels to those of its largest Latin American neighbours. The Internet in Argentina was starting from a very low penetration level. In 1993, for example, there were only 0.05 Internet hosts per 10,000 people, while other Latin American countries, like Chile, had as many as 1.01 Internet hosts per 10,000 people.<sup>1</sup>

By July 1999, however, the situation had changed in some fundamental ways. While countries, like Chile and Brazil had 25 Internet hosts per 10,000 people, Argentina was enjoying the presence of almost 39 Internet hosts per 10,000 people (see Fig. 1). The number of estimated users had climbed from some 70,000 in late 1996 to more than 900,000 in mid-1999; while the number of Internet accounts had grown almost nine fold, from 40,000 in late 1996 to some 348,000 in mid-1999.<sup>2</sup> The poor market prospect that reigned in the early days of the Internet had certainly been reversed. Argentina became by late 1999 the country with the highest Internet host density among the large economies of Latin America.

A number of obvious questions come to mind when confronted with this very rapid growth: How can it be that in a short period of time the country reversed the situation in which it was in 1993? What happened between 1993 and 1999 that the number of connections to the Internet grew more than 255 percent a year, increasing the hosts' density from 0.05 to 39 Internet hosts per 10,000 people?

This case study attempts to provide some clues to the Internet growth puzzle in Argentina. Most analysts would agree that changes in market structure and profile are not the product of a single factor. This paper argues, however, that the Internet boom in Argentina lies mainly in two major policy decisions: (a) the reduction in the price of leased lines, and (b) the reduction of tariffs for local calls through the creation of a special dialling scheme for Internet-related calls. This study pays special attention to these regulatory changes, their impact on the evolution of the Internet in Argentina, and the subsequent benefits that the Net has brought to both businesses and consumers.

## 2. Background

Argentina was among the first countries in the developing world to introduce some radical changes in its telecommunication sector. In 1989 the government announced the privatisation of

<sup>1</sup> In 1993 Brazil had 0.27 Internet hosts per 10,000 people, Mexico had 0.40 and Venezuela 0.23.

<sup>2</sup> CABASE (Camara Argentina de Bases de Datos y Servicios Online — Argentine Chamber of Data Base and Online Services). CABASE data is based on a survey of the ISPs that control 80 percent of the Internet market in the country. CICOMRA (the IT and telecommunications argentine chamber that unite the main companies in the sector) puts the number of Internet connections at 370,000; while IDC estimates the number of Internet users in Argentina at 750,000.

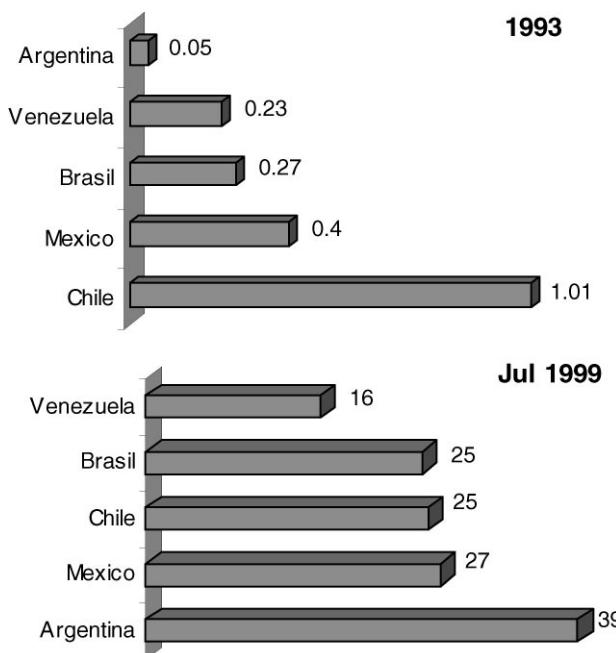


Fig. 1. Racing ahead. Change of host density (number of hosts per 10,000 people) from 1993 to July 1999 in selected Latin American countries. Source: The Internet Software Consortium and ITU.

a majority stake in the national telecommunications carrier (ENTel). Fourteen months later, ENTel's control was being transferred to private hands.<sup>3</sup>

In the days when Argentina privatised its national telecommunication company, the business potential of telecommunication services in developing countries was not so clear. Economic and political instability and years of inefficiency in the provision of services offered a rather unattractive environment for private capital (be it foreign or local). This unattractive investment environment led the government to grant significant concessions to the few private sector companies that bid in the privatisation process, so as to avoid the collapse of the project.<sup>4</sup> At the time of privatisation this meant mainly that tariffs were set at very high levels.

Tariffs rose over 400 percent in the 12 months prior to the sale of ENTel, and another 42 percent in the last days prior to the closing the privatisation deal. High tariffs were extremely unpopular, but provided a strong basis for the companies to acquire the capital required to expand the

<sup>3</sup> The administration that governed the country between 1990 and 1999, responsible for most of the reforms experienced by the telecommunication sector in the country has been praised for some of the achievements in the performance of some sectors of the economy, but it has been also heavily criticised for the detrimental socio-economic consequences that its draconian liberal policies brought to large segments of the population. The new administration, for example, would have to confront an unprecedented unemployment rate of 17 percent.

<sup>4</sup> The privatisation of ENTel became a showcase for the new economic program that the government was about to implement. The sale of the national carrier could not fail. For more details, see, Petrazzini (1995).

network. At the moment of privatisation teledensity stood at 10.7 main lines per 100 people and the network grew that year at a very low 1.83 percent. By 1998, the network had more than doubled (from 3.4 to 7.3 million main lines) providing a teledensity of 20.27 main lines per 100 people, reflecting a network growth of 115 percent for the period 1991–1997.<sup>5</sup> Network digitisation went from 13 percent in 1990 to 100 percent in 1997. Another main indicator of improvement in the sector is the fact that while in 1990 the waiting time for a telephone connection could be as high as 14 years, by 1998 demands for new connections were satisfied in 15 days at the most, and the percentage of satisfied demand reached 99.7 percent.

Privatisation under conditions of economic and political uncertainty led private investors to demand a period of market exclusivity in the provision of basic services. Privatisation, therefore, came hand in hand with a private monopoly that lasted almost nine years.<sup>6</sup> The dismantling of the monopoly regime and the rise of competition began in early October 1999 when four licensed companies were allowed to provide all telecommunication services under competitive conditions throughout the country (see Box 1). Full liberalisation — that is opening of the market to unrestricted entry of local and foreign carriers — is set to take place in early November 2000.

The full liberalisation of the domestic market is closely associated with another important element in the new profile of the telecommunication sector in Argentina. The liberalisation initiative has been reinforced with commitments to the Agreement on Basic Telecommunication Services of the World Trade Organization, (WTO). Although the Argentine offer does not represent a dramatic departure from what the country had as a national plan for the sector, it does consolidate the liberalisation of the domestic telecommunication sector by tying it to the rules and obligations of the WTO.

### **3. Internet in Argentina**

Data communication services were introduced in Argentina in 1985 by the University of Buenos Aires (UBA) to serve the academic community. The Exact and Natural Sciences College set up the UUPC Net as an e-mail tool. Later, in 1989, BITNET — another email oriented network — became part of the information and communications systems serving high-level education institutions.

The first Internet service in the country began in 1991 and was provided by a consortium of academic, science and technology, and government institutions: Secretaría de Ciencia y Técnica (SeCyT), Comisión Nacional de Energía Atómica (CoNEA), National University of Buenos Aires

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<sup>5</sup> The network grew at an average of 14 percent a year in the first five years after privatisation and at 10 percent in the second half of the 1990s. In the licences granted at the time of privatisation the two new private companies were required to grow at an average of six percent a year.

<sup>6</sup> The government argued it chose to grant this market exclusivity because it was necessary to make considerable investments in a few years and only a closed market would grant the necessary conditions for such investments. For privatisation purposes the country was divided in two: the northern part was granted to Telecom Argentina (a consortium led by Stet of Italy and France Telecom), and the south came under the control of Cointel (a consortium led by Telefónica of Spain).

**Box 1: Letting them in**

*Profile of market liberalisation in Argentina, 1999–2000.*

With the aim of consolidating a national telecommunication industry before the market becomes fully open to international competition, the government began a restricted but sustained process of liberalisation. In the first phase, launched in November 1999, four licences were granted to provide all basic and value-added service on a nation wide basis.

The licenses were granted to the two existing basic services operators — Telefónica de Argentina (a consortium leaded by Telefónica de España), Telecom Argentina (a consortium leaded by France Telecom and Stet) — and to the two cellular companies that were operating in the country in competition with the incumbents — Movicom BellSouth (a BellSouth company) and CTI (operated by GTE Mobile and owned by Grupo Clarín and AT&T). Telefónica and Telecom have been operating in Argentina since November 1990, when they purchased 60 percent of the national carrier, Entel, to provide services in the south and north of the country, respectively. Movicom BellSouth and CTI were also already providing cellular service in Buenos Aires and the interior of the country, respectively. Movicom has been in the local market since 1988 and CTI since 1994.

One of the requisites to become a licensee was that applicants should be consortiums integrated not only by traditional private wireline carriers, but also by cellular operators, local co-operatives and cable television companies. The goal was to create national communication conglomerates capable of profiting from the synergies generated by convergence between the telecommunication, broadcasting, and computers sector. Four other full service licenses have been already granted to Comsat, Impsat, Keytech, and MetroRED to enter the market in November 2000.

Although the government has not announced whether any other license will be granted, it is quite possible that it will have to do so due to commitments made to the WTO to open its telecommunication sector in November 2000 to unrestricted entry of both local and foreign operators.

(UBA), National University of La Plata (UNLP), National University of Cuyo, and the Ministry of Foreign Affairs.<sup>7</sup> The first browser was introduced in late 1992. A few months later the first hypertext formats, links, and other related software entered the market. The Argentine Internet was ready to leave behind the days of academic e-mail and files transfers and enter the commercial world of global transactions and web surfing.<sup>8</sup>

By mid-1993 the pressure to launch commercial Internet services increased. As has been the case in most parts of the world, the first Internet companies — Satlink and Los Pinos — came from the pre-existing Bulletin Board services (BBSs). They operated pools of mails that were sent to users every night. The main problem then was to get a reliable international data link at an affordable price. Tariffs in those days were charged per package, and IP protocol transmissions were difficult

<sup>7</sup> Control of the administration of the ".ar" top level domain was, in those early days, at the center of a struggle among the participating institutions. Finally, the Ministry of Foreign Affairs prevailed and the administration of the .ar top-level domain has remained since then under its control.

<sup>8</sup> The academic community in Argentina continued exploiting the potentials of the Internet for education. In 1993 the National University of Buenos Aires (UBA) set up its Communication Center to link the whole University to and through the Internet. In mid-1994 the Ministry of Education launched the Red Inter-Universitaria (RIU — Inter-Universities Network), a project that was aimed at getting all public universities in the country connected with each other and with the main universities, libraries and research centers around the world.

to quantify. Negotiations with the incumbent carriers — who held an exclusivity on international data communications — resulted in the first prices of international leased lines for Internet transmissions, at around US\$ 40,000 for a 64 kps connection to the US. Two of the data communication operators, Startel and Satlink, took up the challenge and began providing dial-up services, but they also resold spare capacity to other ISPs as a way of reducing the high cost of the links.<sup>9</sup>

On 26 April 1995 Startel S.A. — the value-added service provider owned in a joint venture by the two incumbent carriers, Telecom and Telefonica — made its first commercial offering of Internet services. Other players, like Compuserve and Datamarkets, soon joined the market with a range of access modes, services, and price schemes.

Initial expansion of the market, however, was relatively slow. By the end of 1996 host density (i.e., the number of Internet hosts per 10,000 people) stood at 5.1, while countries like Chile, with a population three times smaller and a per capita income almost 30 percent lower than Argentina, had more than double — 11.5 Internet hosts per 10,000 people. After more than 30 months of the commercial launching of the Internet, the number of accounts had grown to only 40,000. Twelve months later, however the number of commercial Internet accounts had climbed to some 250,000 (see Fig. 2, left-hand chart).<sup>10</sup> By mid-1999 the number of estimated Internet users in the country has surpassed the 900,000 figure.

This study concludes that the underlying factor in this rapid Internet expansion was not based on market forces — as it is usually expected in a competitive marketplace — but on regulatory intervention, and in particular in specific rulings relating to two key components of the Internet cost: (a) the price of local calls, and (b) the price of leased lines.

#### **4. Key policy and regulatory decisions**

The rapid rise of the Internet in Argentina has been the consequence not only of adequate “incentive” regulation but also of some creative strategies of private sector entrepreneurs, and, more recently, the work of users who have started to play a more active role in policy formation. But among all these forces applied on Internet services, the policies and rulings of the sector ministry and the national regulator have played a key and central role in its expansion.<sup>11</sup>

The first step in this matter was taken in June 1997, when the President of the country declared Internet access a matter of “National Interest” — through Presidential Decree 554/97. The Decree stated that “Internet is a matter of national interest for all inhabitant of the nation” and that the

<sup>9</sup> Part of this brief history of the Internet in Argentina was provided by Guillermo Bort of Microsoft Argentina.

<sup>10</sup> Data on Internet accounts is provided by Argentine chamber of data base and online services (CABASE). The number of Internet users derives from the following calculation: an average of two email accounts for each of the 320,000 residential accounts, plus an average of fifty email accounts for each of the 2100 corporate accounts; plus 155,000 email-only accounts.

<sup>11</sup> The impact of adequate regulatory decision can be also seen in the booming growth experienced by the mobile sector in Argentina after calling party pays (CPP) was introduced. The number of subscribers had grown at a slow pace raising to 650,000 in the seven years prior to April 1997, date in which CPP was introduced. In the 19 months following the CPP ruling the number of subscribers skyrocketed to 2.4 million.

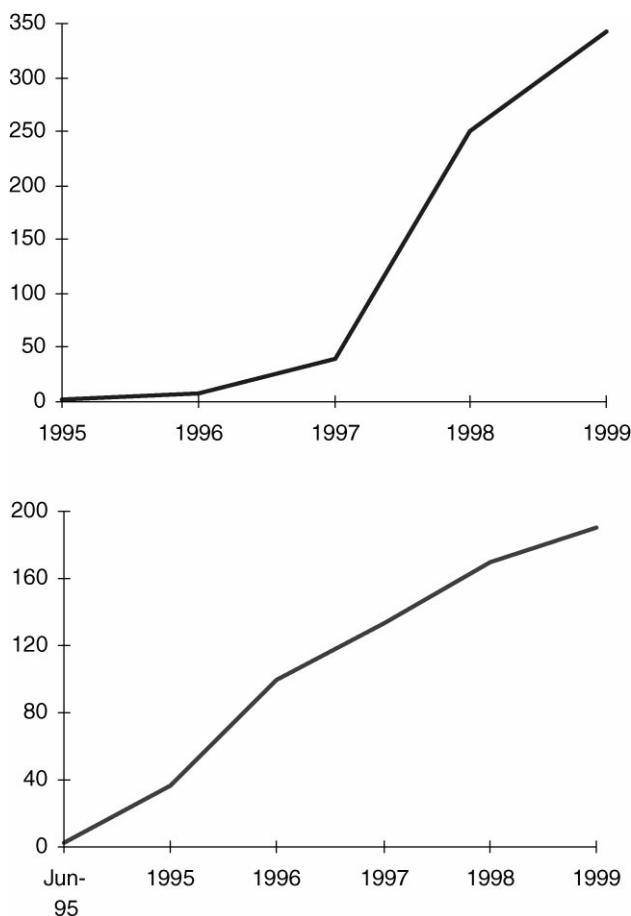


Fig. 2. Rising fast and steep. Evolution of commercial Internet accounts (thousands) and growth of ISPs June 1995–June 1999. Source: Netizen (top chart) and CABASE (bottom chart).

service should be provided on “equitable geographical and social conditions, with reasonable tariffs and with quality standards in accordance with modern multimedia applications”.

The President appointed the Secretary of Communications to carry on the mandate embodied in the Decree, which asked the implementing entity: (a) to develop a strategic plan for the expansion of Internet services in the country; (b) to study the possibility of incorporating Internet service among those services that have to be provided under universal service obligations; (c) to study and propose alternative tariff schemes to promote the diffusion and usage of Internet; (d) to promote the use of Internet as a support tool for education and health services as well as cultural and recreational activities.

The high-level political support provided by the President was followed by several policy and regulatory measures crafted by the Secretary of Communications and the National Communications Commission to remove barriers to the growth of the Internet.

An important element in this policy process is that most of the official decisions emerged with the legitimacy provided by large public hearings organised by the Secretary of Communications. The

first one was called only two months after the presidential decree and provided a basis for the development of policies regarding prices of leased lines and local calls.

The audience offered an open forum for local ISPs to bring to light the high cost of international leased lines.<sup>12</sup> The problem of high leased line prices is not unique to Argentina. Most countries around the world suffer similar constraints due to the lack of effective infrastructure competition in the provision of leased lines. A recent OECD study has shown that in Europe where there is less infrastructure competition than in the USA, the price of a 2 Mbit/s speed leased line is, on average, five times higher than comparable routes in the North American market. In some cases prices in Europe are as much as 13.5 times higher than those in the USA. Large users of data communication services, such as Reuters, comparing price offerings of incumbent and competitive leased line providers, have shown that carriers are charging as much as 20 times the wholesale cost of the underlying infrastructure.<sup>13</sup>

In the particular case of Argentina the difference between the local and the North American market was in 1997 as wide as in other non-competitive markets around the world. Data presented by local ISPs showed that while a 1.5 Mbit/s link from the USA to Argentina stood at US\$1,500 the same connection in the reversed direction was more than ten times that amount.<sup>14</sup> Responding to ISPs and users' demands, the government passed a decree that regulated the price of leased line, bringing them down by an estimated 45 percent.<sup>15</sup>

The other issue that became evident, due to users' complaints, was that the price of local calls was not compatible with the nature and patterns of Internet usage. In Argentina, as in most countries in the world, the Internet is mostly accessed through the local telephone network, a system designed and priced for voice telephony services. In spite of the fact that Internet usage is quite different from that of voice telephony — a typical Argentine Internet user connects to the Internet at least once a day and stays on line on average some 30 minutes — prices for an Internet connection were charged under the same pricing scheme of voice telephony calls. This turned Internet access into a very expensive proposition for most of the population.

In an effort to popularise the service the government worked with incumbent carriers to find a solution to the problem. After exploring a number of alternatives a task force reached the conclusion that the strategy would be to provide a special dialling number (0610) for Internet-related calls. Dialling 0610 to access the local ISPs guaranteed the users a special pricing

<sup>12</sup> In simple terms a leased line is a defined amount of capacity, which has been allocated by a telecommunications infrastructure provider, between two points. The public Internet is made up of a myriad of leased lines woven together by a common protocol TCP/IP. Public telecommunication operators (PTOs) provide most of leased line capacity around the world.

<sup>13</sup> According to the OECD report "An IRU between Paris and London for 622 Mbit/s can be purchased for USD 5.4 million. If this capacity was fully marketed at 2 Mbit/s speeds (at the lowest available TCM prices for this route) it would return, to the reseller, revenues of just under USD 1 million per annum. Fully marketed, at the discounted retail rate from the incumbent carriers on this route (i.e. USD 20 000 per month), the capacity would pay for itself within one year." For more details, see OECD (1999).

<sup>14</sup> A similar situation can be found in the Asia-Pacific region, where the price of a 45 Mbit/s circuit for a connection between countries within the Asia-Pacific region ranges from US\$ 500'000 to US\$ 700'000 per month, whereas US carriers charge an average of US\$ 25,000 per month for a US-Asia 45 Mbit/s circuit connection. Gilbert Arum, cited in Ben Petrazzini and Mugo Kibati, Internet in Developing Countries. Communications of the ACM, June 1999, Vol. 42, number 6, pp. 31–36.

<sup>15</sup> See Decree 2765/97 at <<http://www.secom.gov.ar>>

arrangement by which the price of local calls would be reduced, in some cases by as much as 58 percent.<sup>16</sup>

Local ISPs have also taken steps to increase efficiency of the market and attempt to reduce operational costs.<sup>17</sup> In the early days local ISPs had only international links to the USA interconnected through the incumbent carrier Telintar. To exchange traffic with each other they had to go through the US links. In 1996, Impsat — a local data communications company — acquired the right to provide international links through its 64 Kpbs satellite data service. But even then connection among local ISPs remained poor. That situation led the bigger local ISPs to establish dedicated links among them, an approach that improved the situation somewhat. But, it not was until March 1998, when the Camara Argentina de Bases de Datos y Servicios Online (CABASE) launched the first Argentine Network Access Point (NAP), that the situation began to turn around.<sup>18</sup> With the main Argentine ISPs as part of its 35 members, the Cabase NAP has been able to concentrate most of the national Internet traffic. The next step of the NAP is to attract regional IP traffic by initially interconnecting with smaller NAPs in Chile and Brazil. If this can be achieved, ISPs in the Latin American region could enter peering arrangement when dealing with operators of US and European NAPs.<sup>19</sup>

## 5. Supplementing market forces

But reducing cost of services in a country like Argentina, where 29.9 percent of the population is under the poverty threshold and unemployment has risen to some 17 percent in recent years, is not enough.<sup>20</sup> Furthermore, the increasingly high concentration of wealth in the population certainly hinders the likely spread of the Internet across socio-economic segments of the Argentine society.<sup>21</sup>

<sup>16</sup> For the content of the resolution see Decree 2814/97 <<http://www.secom.gov.ar>>.

<sup>17</sup> One of the strategies implemented by the private sector to bring down the overall cost of Internet access has been the leasing of computing hardware, introduced in the country in April 1996. The strategy aimed at making it easier and cheaper for end users and ISPs to get new equipment. Through leasing the client can get protection against technological obsolescence and be always up to date. Reality, however, showed that implementing the system was not as easy as expected and the initiative did not have much acceptance.

<sup>18</sup> A Network Access Point (NAP) is a physical point in a network where dedicated Internet backbone lines converge and meet. It is, therefore, a network point at which a wide range of ISPs interconnect with each other.

<sup>19</sup> Currently Latin American ISPs are treated by large US and European NAPs as clients, which leads to the payment of the whole circuit, plus the access rate at the connection point, generating a much higher Internet costs for final users than those offered by ISPs to their customers in developed nations.

<sup>20</sup> A recent World Bank study indicated that some 11 million people in the country stand below the poverty line. Almost a quarter of those living under poverty levels are indigent. By the Bank's standard's poor in Argentina are those adults with incomes of less than US\$160 a month, which is the cost of a basic family basket. Indigent are those that earn less than US\$70, which is the cost of access to food that would provide the minimum required calories for subsistence.

<sup>21</sup> From August 1998 to August 1999, in Buenos Aires and surrounding areas the gap between the rich and poor increased even further. During those 12 months the richer 10 percent of the population increased its income by 4.9 percent, while the remaining 90 percent of the population lost some 10 percent of its purchasing power. As in previous years, the lowest income groups — those earning between US\$5 and US\$150 a month — were the ones negatively affected by the changes. For further details, See Instituto Nacional de Estadística y Censos (INDEC) at <<http://www.indec.gov.ar>>

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According to recent studies of the sector, in the high income segment of the Argentine society Internet access is expected to grow from the current 23 percent to some 53 percent in 2003 — reaching figures similar to those of the USA. But, in the low-income segments Internet penetration — which stood at zero in 1998 — was expected to reach no more than 4 percent in 2003 (Katz, Booz & Hamilton, 1999). The need to lower the cost of access is obvious if Internet services are to spread beyond the higher income groups of the population.

Following international trends towards the expansion of public access through community telecenters and other types of public access points, the government launched “Argentin@Internet.todos” a project that aims at opening 1000 so-called Centros Tecnológicos Comunitarios (CTC – Community Technological Centers) (see Box 2). The CTCs are access points to data networks — in particular Internet — located in low income and remote communities of more than 500 people. “The main objective of the project — according to Marcelino Alvarez, the person in charge of CTC implementation at the Secretary of Communications — was to spread the Internet throughout the country to turn the universal access concept into a tangible reality.”

#### Box 2: Implementing CTCs

*Profile and community services of selected CTCs in operation as of mid-1999.*

A number of interesting CTC experiences are beginning to deliver positive results. Huinca Renancó, a town with an agrarian economy located in the south of Córdoba province relies heavily on the local CTC to ease technology transfer for the region's small and medium size businesses. The local CTC provides videoconference service, virtual library, and laboratory for the development of applications and content in Internet, satellite links for Internet access and distant learning services. The Center also operates as a regional hub connecting for free all major educational and health centers in the region, a service that provides training and continuing education to more than 1,300 young people in the town and surrounding areas.

*El faro de la sabiduría* (the lighthouse of wisdom) is another valuable experience of a CTC located in a modern 38 meters-high observatory, in the city of San Luis. The CTC has a fully digital infrastructure with services such as virtual library, provincial data bank, Internet room, and laboratory for the development of applications for Internet, videoconference (via Internet), virtual education and real time links with the provincial government. More than 1500 young people profit regularly from the services and infrastructure provided by the Center.

Argentin@Internet.todos has reached as far as Antarctica. In 1998 the Argentine base Vicecomodoro Marambio — which already had installed a 10 Mbps Local Area Network — was connected to the Internet through a 64 kbps VSAT link. A web site offering information about the Base is being developed and a video camera installed outside the base will capture and transmit images of the Antarctica landscape and life to the Internet. The Argentine government plans to extend Internet access to the other Argentine Bases in Antarctica during the coming 1999/2000 summer season.

*Source: Secretaría de Comunicaciones de Argentina*

Each CTC provides Web-mail, chat, photograph gallery, virtual forums, news billboard, products and services oriented to small and mid-size companies, telemedicine, consultations and browsers. The location of each CTC is determined based on criteria such as the degree of social, cultural or economical disadvantage in the community, the distance from urban centers, the quantity and quality of potential users, and the prospects of stand alone technological development. Alvarez and others involved in the project “look for places where Internet access is difficult or impossible due to geographic or economic barriers. The institutional profile needed by an organisation to hold a CTC includes a clear leadership in the community. The Center can be located at schools, clubs, churches, libraries, city halls, and other local institutions.”

Each CTC will have five PCs, two printers, one scanner, two video cameras and one digital photo camera. The equipment is supplied with funding of the Secretary of Communication in an agreement with the International Telecommunication Union—which is providing project management.<sup>22</sup> The initiative includes a permanent training system and a portal ([www.ctc.net.ar](http://www.ctc.net.ar)) that allows program co-ordinators to be connected with each other creating a virtual community of users. Government officials at the Secretary of Communications “expect that each CTC will serve 400 to 800 people that will become frequent users of the Center because they will be able, among a variety of other things, to develop their own web pages and hold their own e-mail addresses.”

The project also includes the connection to the Internet of 1745 public libraries throughout the country. The program is scheduled for completion by December 1999. The libraries will have a special telephone line for Internet access and will enjoy up to US\$100 of free local call access. Public libraries applying to this project will have to be opened 8 hours a day, 6 days a week.<sup>23</sup>

With 560 CTC already installed as of mid-November 1999 and 500 forthcoming in the following months, the CTCs are spreading at a rapid pace throughout the country connecting people in small and remote communities of the interior.

To extend even further the benefits that new communication technologies and services can bring to society, the outgoing President signed in mid-November 1999 a decree (nro. 1335/99) that declares of national interest an ambitious project labeled “An e-mail address for each Argentine.” The initiative sets a commitment for the government to provide to each citizen and company in the country a free e-mail address. The regulation appointed Correo Argentino—a private company that holds a license to handle the official postal system of the country—to implement the project, including the set up of computers in some 6500 post offices to provide public access to the service.

## **6. Socio-economic impact of policy reforms and Internet growth**

Policy reforms and private sector initiatives have had a tangible impact in the development of Internet in Argentina. There are a number of indicators that provide evidence of the improvements experienced after the changes were introduced.

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<sup>22</sup> More than 30 of the CTCs already installed are being set up through a system called “approbation” by which incumbent public service providers reduced their fines by donating installed CTC.

<sup>23</sup> Another education-related project that is in the making is the creation of virtual University classrooms. The project envisions the installation of 550 virtual classrooms in universities and higher education institutions throughout Argentina.

Table 1

Helping market forces. Impact of regulatory intervention on the price of a 15 min local call access to the Internet and on the price of international leased lines in Argentina 1997 (US\$ dollars)<sup>a</sup>

	Before	After	Variation (%)
<i>Local call prices</i>			
Peak time prices	1.35	0.64	– 52.50
Regular prices	1.01	0.64	– 36.67
Discount prices	1.01	0.42	– 58.25
<i>Leased line prices</i>			
64 Kbps	8,905/mo.	4,793/mo.	– 46.18
2 Mbps	114,096/mo.	63,182/mo.	– 44.62

<sup>a</sup>Source: Secretaria de Comunicaciones de Argentina

### 6.1. Prices

The cost of both local calls and leased lines were a key deterrent to the growth of Internet services in the early days. The two rulings that address specifically each of these problems led to an immediate reduction of prices. Leased line prices dropped in average some 45 percent, while the decline in the price of local calls was, in some cases, as high as 58 percent (see Table 1).

Through this period the Government's regulatory initiatives have been reinforced by price cutting dynamics generated by an increasingly competitive market. The rising number of ISPs in the market, hardware cost reduction due to technological innovation, and the economies of scale generated by market expansion heightened the already incipient competition and led, between 1996 and 1999, to a rapid decline in Internet access charges. The flat rate cost per month for a full connection to the Internet, for example, dropped from an average of US\$ 125 in mid-1996 to US\$ 27 in October 1999, with some exceptional offerings standing at less than US\$ 20, or even at less than US\$ 10.<sup>24</sup>

This later is a recent offering of the largest ISPs in the market which launched in early November 1999 an offering of US\$ 9.90 a month for full Internet access. Management of Arnet argue that with these prices they are "contributing to lower the cost of Internet access in Argentina, which is a demand from both civil society and the new government." Perceived by users as a great step forward in the affordability of Internet services, the offering is understood by other ISPs in the local market as an anticompetitive move of the incumbent carriers (see Box 3).

While large ISPs are introducing low-price offerings, small- and medium-size ISPs are struggling to improve their services and keep a niche in the market based on premium and customised services. For some local analysts the lower prices versus quality of service model seems to be rapidly consolidating in the local market. From this perspective, users for which Internet is a key

<sup>24</sup> The fact that Internet access prices are coming down to reach similar or even lower levels than those in the USA does not imply that a similar market growth will follow. Certainly income per capita and purchasing power in Argentina are not comparable to the USA, and, therefore, will act as a break to Internet growth at a much earlier stage than the USA. In 1997 GDP per capita in the USA stood at US\$ 30173, while in Argentina in the same year it reached only US\$ 8214.

**Box 3: How cheap can we get?**

The US\$ 9.90 tariff has triggered a widespread debate among local ISPs. The offering is being attacked by a number of ISPs arguing that Arnet can only offer this price by getting transmission capacity from its holding company, Telecom Argentina, at prices below cost. "My provider sells me the links at higher prices than the ones it charges its own ISP, how do you call that?" asks Mario Domínguez of CABASE, suggesting the existence of a cross-subsidy. "We are not engaged in cross-subsidy, we simply want to make Internet accessible to everyone", defends Castiglioni of Arnet. The offering of Ciudad Internet, an ISPs controlled by a large media group not directly related to the incumbent Telecom and Telefonica, of services at the same price has raised further questions on whether there is actually cross-subsidy or not on the side of the telecom operators.

Cabase managers argue that the cost of lines plus the cost of international links represent between US\$ 8 and US\$ 10 per user, which makes it impossible for Arnet to offer those prices without some form of cross-subsidy and for other ISPs to compete with it in fair terms and conditions. Taking apart the cost of Internet services Dominguez argues that "to serve 300 users, an ISP needs at least 30 lines, which cost between US\$ 1,100 and US\$ 1,200. That means that the cost per user stands between US\$ 3,60 and US\$ 4. To this you must add the international link which is another US\$ 6 per user."

Guillermo Bort, of Microsoft Argentina, believes instead that "Telecom is doing the right thing. Figures are on their side. This is only a matter of volume, not a matter of prices or costs per se. The problem is that small and mid-size ISPs cannot reach the discount levels of large ISPs, like Arnet. Telecom is reading the market right, the bigger you are the better. You must think that nowadays an ISP is worth two or three times its annual revenues, while an Internet portal is worth 60 or 70 times its revenue. This market strategy is the easier way for Telecom to prepare a spin off and make its company public. This is an irreversible process. If you look at the United States, you do not see two or three AOLs. You only have one. ISPs may have a niche, but it is obviously not the US\$ 9.90 market."

"Arnet's move could easily lead to a rapid market concentration pushing almost 200 independent companies out of the market, because the costs of providing the service are higher than those that can be charged to users", argued Domínguez. CABASE was planning to take Arnet to court on charges of predatory pricing and anticompetitive cross-subsidies.

resource of both information and communication will probably follow the more expensive but also more reliable providers, while those for which the Net is only a source of occasional entertainment will probably go for cheaper mass services.<sup>25</sup> Others believe that the US\$ 9.90 offering will strike hard on small ISPs leaving in the market only a few big players.<sup>26</sup> Some are expecting that the trend to increasingly lower prices would eventually lead to schemes similar to those in the UK, where Internet access is offered for free by some ISPs.

<sup>25</sup> Another strategy being implemented in the country by local ISPs to bring down the cost of Internet access is the "free PC" model. The scheme offers a desktop PC as part of the access fee. This innovative marketing scheme has been introduced by Advance and Ciudad Internet — two of the largest ISPs in the country. They have reached an agreement with Compaq Computer Corporation to include a Presario in their offer.

<sup>26</sup> Argentina had experienced already a similar process in the cable TV (CATV) industry with the difference that in the CATV industry the small companies were bought by larger ones and not pushed to bankruptcy at it seems to be probably the case. In the CATV sector the initial 1100 small CATV companies that sprouted around the country in the early days of unregulated services have been bought and absorbed by larger players leaving in the market only 10 percent of those that existed a decade ago.

## 6.2. Users

The drop in the cost of local calls and rapid decline in the cost of Internet access triggered a rapid growth of Internet users in the country. The number of commercial Internet accounts jumped after the implementation of the regulatory measures from 40,000 in late 1996 to some 250,000 a year later (Fig. 2, left-hand chart). This has led between 1993 and 1998 to a compound annual growth rate of 254 percent (Fig. 3, right-hand chart). The significance of the growth becomes more manifest when Argentina is compared with other large economies in Latin America which have experienced half or less than half of the growth enjoyed by their southern neighbour. (Fig. 3, left-hand chart).

In spite of the rapid expansion in the number of users, it is evident that Internet services have not yet spread beyond the high-income groups of society. The average Internet user in Argentina is 29 years old, predominantly male (71 percent) and has completed College. Most Argentine Internet users have had computers for at least 5 years and have an advanced or mid-level knowledge of information and communication technology. More than 63 percent of the users obtained access to

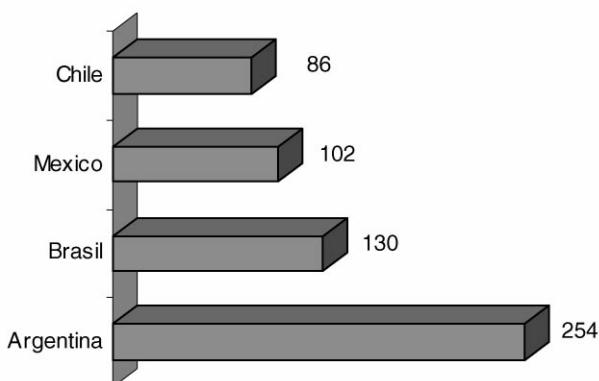
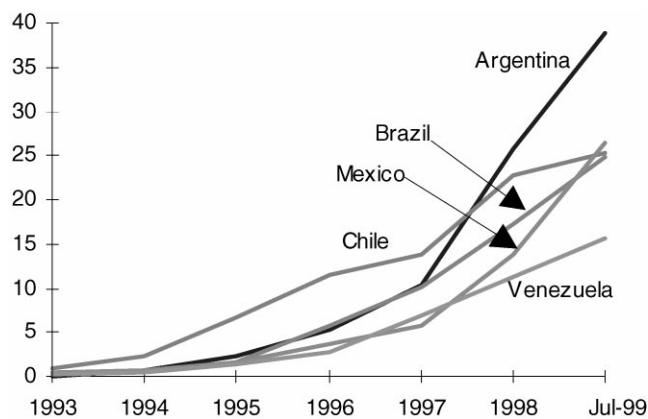


Fig. 3. Building the information highway. Internet host density (hosts per 10,000 inhabitants) 1993–1999 and Internet host annual percentage growth, CAGR 1993–1998. Source: ITU and The Internet Software Consortium.

the Internet between 1997 and 1998 and they use it an average of five and a half hours per week a week. They get connected at least once a day and a typical session lasts 30 min.<sup>27</sup>

### 6.3. Internet Service Providers (ISPs)

The reduction in leased line and local call prices and the subsequent growth of Internet subscribers led, in a virtuous cycle, to the sustained expansion of the ISP market. The number of ISPs in the country grew from 36 at the end of 1995 to more than 170 by mid-1999 (see Fig. 2, right-hand chart). Data collected by the Secretary of Communication also showed that the reduction in the prices of leased lines had a manifest impact in the distribution of ISPs throughout the country. While prior to the ruling the city of Buenos Aires concentrated more than 70 percent of the ISPs operating in the country, after the measure the presence of service providers in the country became more balanced with an almost equal distribution between the capital (which holds 30 percent of the country's population) and the interior.

This rapid expansion in the number of ISPs, however, does not reflect the degree of concentration that still exists in the national market. Large economic groups associated with the incumbent carriers and other multimedia groups control most of the Internet market in the country.<sup>28</sup> The four largest ISPs — Arnet (Telecom Soluciones), Advance (Grupo Telefónica), Impsat (Grupo Pescarmona) and Ciudad Digital (Grupo Clarín) — control more than 80 percent of the local Internet market.

This distribution of market share is a clear reflection of a similar distribution of resources and capital in the local industry. There is a huge investment gap between large and small ISPs. Advance — the ISP of the incumbent carrier Telefonica de Argentina — invested more than US\$ 100 million in infrastructure, services, and marketing during 1998 and half of 1999. Arnet — the ISP of the incumbent Telecom Argentina — invested some US\$ 49 million during 1998 and will be finishing 1999 with a investment of another US\$ 154 million. In contrast, a small ISP like Interserver has invested US\$ 0.5 million since its creation and is planning to invest another US\$ 0.5 million between 1999 and 2000.

The landscape of the local market, however, is still not settled. Gonzalo Berra of Netizen considers that “one can distinguish until now three generations of companies in the development of the Internet in Argentina. The first generation was the group of companies coming from activities related to the business like Bulletin Board Systems. The second, is integrated by some entrepreneurs like Netizen that decided to settle middle-size operations. The third generation came with the big local telcos and media groups investing large amounts of money in this new business. But now we are witnessing the arrival of a fourth generation of companies: the big North American players that are coming to Argentina with their extensive know-how and deep pockets”.

<sup>27</sup> Other data on the profile of local users shows that more than 70 percent of users access the Net from work and 61 percent from home. Only 4 percent get connected from an educational institution. The most popular usage of Internet is e-mail (89 percent at work and 92 percent at home) followed by web browsing (32 percent at work and 84 percent at home). Although less than 5 percent uses the Net to chat at work, 60 percent of the people chat from home. The most popular sites are newspapers online – 30 percent. (see Prince and Cook Consulting, 1999).

<sup>28</sup> See “Es urgente esperar”, *Insider*, July 1999, page 103 at <www.insider.com.ar>

One of those players is Microsoft Corp. who has arrived to Argentina with an alternative to traditional computer-based Internet services. TV sets rather than networked PCs is in the view of Microsoft another way of bringing Internet services to the home. There are around twice as many television sets around the world as telephone lines, and in middle income countries like Argentina, television penetration is three times higher. Thus solutions to bring Internet through televisions should increase Net access in countries like Argentina.

One such system is WebTV. Developed by a start-up company which was later purchased by Microsoft, WebTV develops applications for running the Internet services over television sets. Through a special set-top box and a cordless keyboard, subscribers can access the Internet at reasonable tariffs and high speed. With rebates, the set-top boxes will cost around US\$ 200 in Argentina, where they are expected in the market by June 2000. “With the high penetration of TV and cable in Argentina, we think this is an ideal country for making WebTV the best way to popularize the use of Internet”, argues Bort of Microsoft South Cone. The company is negotiating agreements with local cable companies, big media groups, ISPs and satellite companies to provide Internet access over TV sets.<sup>29</sup>

#### *6.4. The Internet and local businesses*

The Internet can significantly reduce costs of business transactions. For example, while a banking transaction costs around US\$ 5.04 if carried out through a call center and US\$ 1.05 if done through an ATM, the same service, stands at only US\$ 0.05 if carried out through the Internet. This lower costs and the increasing number of consumers connected to the Internet have triggered not only a rapid migration of existing local businesses to the virtual world but also the rise of new business operations that are uniquely designed to profit from the communication capabilities offered by the Internet.

The fast expansion of the “Internet economy” in Argentina is attracting a surging amount of both local and foreign capital into the local economy. A number of successful local ventures in the world of electronic commerce give credit to the positive impact that the rise of the Internet is having in the national economy. The Argentine corporation *El Sitio* <www.elsitio.com>, for example, raised in June 1999 some US\$44 million from the investment firms Ibero-American Media Partners, GCC Investments, and Quantum, granting investors a 35 percent share on the ownership of El Sitio.<sup>30</sup> The investment was the highest ever made on an Argentine Internet company. El Sitio is an Argentine portal with an extended network of web sites that offer interactive content and information resources for Spanish and Portuguese speakers in Latin

<sup>29</sup> WebTV trials are currently being implemented in several countries around the world, including Bahrain (inetTV) and Mauritius.

<sup>30</sup> Ibero-American Media Partners is an investment fund managed by the holding company Hicks, Muse, Tate and Furst and Cisneros Group; GCC Investments is a branch of GC Companies, which manages the General Cinema Theatres and Quantum is owned by the Hungarian-American investor George Soros. Other Internet Argentine initiatives such as the TheCreditCompany.com have enjoyed the solid financial support of the Soros group. Founded by former executives of IRSA, Procter and Gamble and the brokers firm De Ganay and Quirno, TheCreditCompany.com is the first online mortgage credit firm in Latin America.

America and the United States. The company has branches in Argentina, Brazil, Mexico, Uruguay and the United States and was founded in 1996 by Roberto Vivo, Roberto Cibrián Campoy, the Liberman Group and the Tower Plus International Corporation.

Likewise, Patagon.com, another Argentine Internet company created two years ago by 23 year old Wenceslao Casares and Constancio Larguia, raised in mid-1999 some US\$8 million from Chase Capital Partners and Flatiron Partners — both American corporations with investments in other Internet sites like Starmedia and TheStreet.com. Patagon has quickly turned into the leading site for financial transactions in Latin America with offerings related to the evolution of share prices, graphics, analysis, financial trends, and chats among investors. It also sells banking products like credits and funds. In late 1999 Patagon acquired the Brazilian on-line trader NetTrade. Through this purchase Patagon has not only diversified its operations, but it has also gained control over 60 percent of online trading in Brazil — a market that holds half of the 7.5 million Internet users in Latin America. Patagon was in the process of raising another US\$30 million in Wall Street to expand further its operations in the region.

Following the success of El Sitio and Patagon, two groups of local young entrepreneurs set e-businesses aimed at selling goods and products over the net. With an initial investment of US\$10 million, earned at a road show with American investors, Marcos Galperín and Hernán Kazah, left their Business School programs at Stanford University to launch MercadoLibre, the leading Argentine site offering auctions on the Internet. A similar successful experience is that of Alec Oxenford and Enrique Shaw who launched DeRemate, in a joint venture with the French company Aucland. Both MercadoLibre and DeRemate are online marketplaces where visitors can buy and sell antiques, books, movies, music, coins, stamps, computers, toys, jewellery, stones, photographs and electronic devices.

Venture capital has extended also to other sectors of the economy, including areas such as media and broadcasting, tourism, ecology, agriculture, and others. For example, the Argentine site *Ambiente Ecológico* <www.ambiente-ecológico.com> created only three years ago in Buenos Aires, was negotiating in mid-1999 with three international financial groups the sale of 49 percent of its shares for more than US\$50 million — plus a US\$12 million investment in the next 30 months.<sup>31</sup>

Even large corporations like Microsoft are considering the launching of Internet-related businesses in Argentina. The company is developing its own portal for the local market and is considering a joint venture with a telecommunications company or a media group to enter the local market. The Argentine portal should be online in early 2000 and will include an e-commerce platform, services for small- and medium-size enterprises and an auction site.

These are just a few examples of the long list of e-businesses that are sprouting on a weekly basis in the Argentine landscape thanks to the rapid expansion of the Internet throughout the country.

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<sup>31</sup> Weddings are also a boom on the Net. Inspired on the North American sites weddingchannel.com and theknot.com, the Argentine companies bodasynovias.com and casamientosonline.com are trying to take advantage of a business that moves in Argentina US\$420 million a year. More than 70,000 couples get married in the country each year with an average expense of US\$6,000 per event. Bodasynovias.com was negotiating in late 1999 with three investment groups the creation of a virtual shopping mall to help brides, grooms and their guests get online what they need for that special day.

### *6.5. The Internet and public services*

The government of the city of Buenos Aires has been at the lead in moving to the Internet a number of public services that the city provides. One of the leading projects is a telemedicine program launched in April 1998 that interconnects four of the main hospitals in the city — Vélez Sarsfield, Muñiz, Santojanni and Garraham.<sup>32</sup> The city administration has also launched a plan to connect all schools under its jurisdiction to the Internet. The program has already seven public

#### **Box 4: Reaching everyone**

##### *The impact of the Internet in the lives of low income communities*

Mario Fernandez is the cook at the only school in Villa Obispo Angelelli, a small and poor community located in the outskirts of Córdoba city. His days slowly went by between work and home. Each morning he arrived at school, spent the day stirring pots, serving meals, cleaning dishes and then back home where family duties were waiting for him. Mario, was illiterate but eager to learn the obscure art of reading and writing. Yet, due to his long working hours there was no time left for any formal education. Furthermore, the community did not have any public library or adult education center to serve people like him. Mario's expectations in life were as low as his salary.

In March 1998 a Community Technological Center with access to Internet and a virtual library were installed in Angelelli to serve the 180 families that live there. A year later, a few months before the beginning of the new millennium, Mario was also beginning a new life. Thanks to the connection to the virtual library and with the support of one of the staff at the CTC he was learning to read and write. His future was looking much brighter than in the pre-Internet days.

Mario is not the only one in Villa Obispo Angelelli that has been touched by the opportunities offered by the CTC and its connection to the Internet. At 11 years of age Diego Molina was an excellent student with good prospects both at school and in life. Yet, under the disbeliefs of his teachers Diego began to decline in his performance in class and one day, with no further notice, dropped out of school.

A rather rough family environment had slowly but surely undermined Diego's fascination with the world of learning. His home was not the best place to do homework or to concentrate in reading and writing. His parents, while at home, spent most of their time discussing and fighting with each other. Such an environment made Diego slow down in his studies and loose his fifth year of primary school. When the CTC came to the community Diego was at the doorsteps of a life with no future.

The Center with its new information and communication technologies and a space for training and education offered what Diego needed to re-enter the world of education and prepare himself to face the future with better chances of success. Diego has started school again and he is using the library at the CTC as a place to do his homework and the connection to the Internet as a valuable communication tool to exchange information and knowledge with other kids in the country and abroad.<sup>33</sup>

*Source: Secretary of Communications of Argentina*

<sup>32</sup> This project was one of the 92 projects selected by the European Union's Global Bangemann Challenge Commission, which awarded prizes to the best Internet programs in the world.

<sup>33</sup> Diego's father, owner of a small and relatively unproductive piece of land, has also benefited from information technology as well. Access to the Web at the CTC provided him with detailed information on yearly trends and patterns of the local weather as well as data on soil, seeds, fertilisers, and other valuable agricultural information. Easy access to this wealth of information allowed him to plan, manage, and rote his crops, reaching that year a record harvest.

libraries on line and 16 participation and managing centers. A number of guides and directories that allow people to consult on government-related procedures and services are also coming on line. Similarly, traffic information will soon become available over the web supported by several video cameras strategically placed in different areas of Buenos Aires offering real time traffic information on key areas of the city. To implement these and other related projects the city government links to the Internet grew during 1998 from 64 kbps, to 128 kbps, to 256 kbps and in 1999 the network was upgraded once more to 384 kbps.

The city of Buenos Aires is by far the wealthiest urban center in the country and, therefore, has been able to expand and upgrade its Internet-related services to match world standards. In the interior of the country, where income is much lower and access to public services more restricted, the Community Technological Centers with their connections to the Internet have come to play an important role in the supply of education, health, and other public and private services to people living in remote or low income communities (See Box 4).

## 7. The road ahead

Despite rapid market growth, Internet revenues still constitute in the national communications market only one percent of the US\$10,600 sector revenues in 1998, and less than one percent of the population has an Internet account.<sup>34</sup>

There is also still much to be done in terms of infrastructure to bring the whole country to the doorsteps of the information highway. "There is a big problem with the current communications infrastructure in Argentina — considers Berra of the ISP Netizen — because there is a high concentration of modern infrastructure in Buenos Aires, but there is not much fiber optic or other advanced technologies in most provinces. That is why we are not operating there. The only places we are planning to go are Mendoza, Córdoba and Rosario, because we see critical mass there. The rest of the country is just a matter of patchy infrastructure".

The amount of PCs and other Internet-related hardware already installed and the sharp reduction in the price of services and hardware are setting the basis for a period of rapid growth of the Internet. Some 850,000 Argentine homes have a personal computer (PC) but only about 30 percent of those are connected to the Internet. Analysts forecast a sustained growth of the local Internet market reaching an estimated one million commercial accounts nation-wide by the year 2002.<sup>35</sup>

This prospect for Internet growth, however, has been undermined during 1999. Although PC prices and other related hardware are half of what they were three years ago, the economic recession suffered by the country during part of 1998 and most of 1999 lowered the diffusion of PCs

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<sup>34</sup> Compared to the USA, where the estimated number of Internet users stands at around 27 percent, Argentina still has a considerable growth margin. In telephone services, for example, the difference in penetration is only three times — in 1998 the USA had 64 main lines per 100 people and Argentina had 22 main lines per 100 people — not 10 times as in the case of Internet.

<sup>35</sup> Recently elected President Fernando De la Rúa is even more optimistic promising that Argentina will reach 3 million users at the end of his presidential period in 2003.

and Internet related hardware. The earthquake in Taiwan and the subsequent rise in the price of chips and other PC components raised even further the barrier to access Internet-related hardware. Local resellers consider that the price of memories, motherboards and monitors have risen some 80 percent after the Taiwan crisis, directly affecting the prices of notebooks and PCs.<sup>36</sup>

### *7.1. Local calls and leased line prices*

The reduction of local call prices through the creation the 0610 special Internet price scheme, and the reduction in the cost of leased lines have certainly helped considerably in the diffusion of Internet services throughout the country. The cost of Internet services (including both the price of local calls and ISP services — are still seen by most Internet users as one of the main barriers to the diffusion of the technology (see Fig. 4). This, of course, is not counting all those that cannot currently afford access to the Internet.

Internet users, however, are still demanding further price reforms that would bring tariffs in line with international trends. There is a widespread perception among users that high prices still remain as one of the most negative aspects of the Internet in Argentina. A 1999 survey showed that more than 65 percent of respondents considered high prices of services as the most important barrier to the rapid diffusion of the Internet. (Prince & Cook consulting, 1999). Profiting from widespread dissatisfaction with current prices, an informal users group called Morpheus is calling for flat rates for local calls and plan to strike — by not using telephone services on particular days — to force the incumbent carriers and the government to listen to their request.<sup>37</sup>

In parallel to the rising demand for flat rates, some ISPs are campaigning for what they call “0-610 clave interurbana 2.” According to them Internet is becoming popular and cheaper in cities like Buenos Aires, but in several cities and towns in the rest of the country there is no 0610 number to get connected at lower costs. The “0-610 clave interurbana 2” approach is — according to Cabase — the only way to give connection to all places with more than 10,000 inhabitants in Argentina. “This special scheme would allow users to get connected to Internet nodes in neighbouring towns at a reduced price without paying a long distance call. This way ISPs would have to generate a lot less nodes than if they have to set one in each small town where an Internet connection is required. In some cases this scheme is already in operation, but is provided only by the ISPs owned by the telcos who can transport traffic to the Internet nodes located in the nearest town without paying long distance charges”, added Domínguez.

Unregulated competitive forces, most clearly represented in the rise of Internet telephony services, are also beginning to play an important role in the future of pricing in the market (International Telecommunication Union, 1997). The first signs of Internet telephony are starting to emerge throughout the country. PhoneNetPhone, for example, is offering free calls to the USA any time, any day from any phone. The service, designed both for commercial and personal use, can

<sup>36</sup> In spite of the rapid liberalization experienced by various segments of the local service and goods market, information technology hardware still holds a 10 percent custom duty.

<sup>37</sup> In Spain, the incumbent carrier, Telefónica, and the Spanish government faced similar pressures when users went on strike demanding flat rates for local calls. Popular pressure and the economic harm of strikes led to granting of flat rates for local calls.

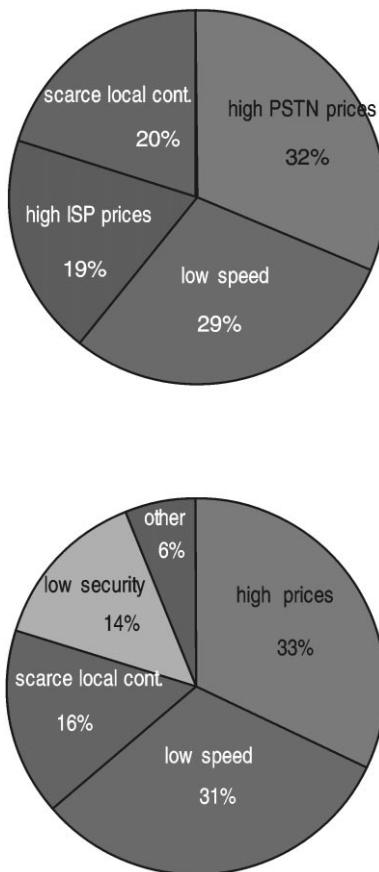


Fig. 4. The dark side of the Internet. Negative aspects of the Internet according to Internet users in Argentina, 1997 (top) and 1999 (bottom). Source: Secretary of Communications (top chart) and Prince and Cook (bottom chart).

turn an analogue telephone into an Internet phone, just using a special kit that amounts to less than US\$400.

Policy measures also have brought considerable progress in the area of leased line prices. However, based on current international trends, leased line prices in Argentina still remain way above international benchmarks. The opening of the leased line market to competition has not made significant inroads in increasing leased line capacity or improving quality of services. Due to the current market structure and scarce competition in infrastructure, prices still stand at high levels compared to similar services in highly competitive OECD markets.<sup>38</sup> “Telecom Argentina and Telefónica control both our national connections and the international links, says Aboitiz of

<sup>38</sup> OECD has stressed that on routes where infrastructure competition is not yet permitted at both ends a leased line the cost of it can be as much as 14 times higher than the best available price in a market where infrastructure competition does exists.

InterMedia Comunicaciones. We consider that this leads to predatory practices on the part of the incumbent carriers.” CABASE is now demanding action from the new government to reverse this situation.

As of mid-1999, for example, the cost of a 64 kps leased line for a local connection (i.e., to link a customer with the node of a local ISPs) still stands at more than US\$1,000 a month. Similarly, a 64 kps line to connect Buenos Aires and Cordoba (a city at 700 Km from the capital) cost as much as US\$2,000, while a 128 kpbs connection stands at around US\$3,400. In the USA, instead, a connection of the same capacity between cities of similar size and separated by a similar distance is offered at a price 10 times lower.

The future is also likely to unravel a latent conflict between administrations around the world — including Argentina — and the United States. The problem is that ISPs outside the USA, and in particular those in developing countries, suffer from an Internet practice — born out of the historical evolution of the Internet — that requires them to pay the full cost of international leased lines to connect to US Internet backbones.<sup>39</sup> The high demand for access to US exchange points and content give US-based ISPs the leverage to require the rest of the world to buy access into the US (International Telecommunication Union, 1999).

Non-US ISPs complain that the resulting situation benefits ISPs and consumers located in the United States. Even though the bandwidth to the US is fully paid for by the external ISP, traffic on the circuit can travel in both directions. This, they claim, constitutes a free ride for US-based ISPs and US Internet users. A recent report by the Asia Pacific Internet Association (APIA) estimates that global subsidies by non-US ISPs could amount to as much as US\$5 billion per annum. (Asia & Pacific Internet Association, 1998). The situation is, according to sector analysts, reflected not only in the payment of the full circuit by non-US ISPs (and users) but also in the balance of traffic flows handled by the networks. The United States-to-Asia/Asia-to-United States traffic ratio, for example, is 7 : 3, while the United States-to-Ghana/Ghana-to-United States is 2 : 1.<sup>40</sup>

Some operators in the Asia-Pacific region have come up with a joint statement claiming that “it is inappropriate for the ISPs and operators in the AP region to bear the entire cost of international Internet backbone between the AP region and the US.” They request the US operators and/or ISPs “to share the cost of international Internet backbone between the US and the AP region according to their usage or benefits.”<sup>41</sup>

## *7.2. Internet 2 and other initiatives*

Argentina has travelled a long way in the Internet era. To keep up to date in its progress, it has launched the so-called “Internet 2” program. Emulating a similar program established by the US

<sup>39</sup> In the voice telephone world the cost of an international circuit is split between the two countries that are connected. On the Internet, in contrast, ISPs who want connectivity via the US are expected to pay for the entire circuit.

<sup>40</sup> Asia and Pacific Internet Association and Nii Quaynor cited in Ben Petrazzini and Mugo Kibati. Internet in Developing Countries. Communications of the ACM, June 1999, Vol. 42, Number 6, pp. 31–36.

<sup>41</sup> For more details, see “Statement on the Cost Sharing of the International Internet Interconnection Link between the U.S.A. and Asia-Pacific Region” issued on 26 January 1999, by The Communications Authority of Thailand; Chunghwa Telecom Co. Ltd., Taiwan; Indonesia Satellite Corporation; KDD Corporation, Japan; Korea Telecom; Philippines Long Distance Telephone Company; Singapore Telecommunications limited; Telekom Malaysia Berhad, Malaysia.

government, the Argentine public and private sectors hope to test, in this parallel, high-speed Internet, new technologies and services that will eventually upgrade services provided over the public Internet. Some of the services being tested are in the domain of digital libraries, distance education, virtual laboratories, telemedicine, and video on demand, supercomputer applications, and others.

The Counsel of Argentina Internet 2 includes both government officials, several private and public sector universities, and telecommunication operators. The universities that participate in the project have made a considerable bet on the potential of online education and are shifting resources to develop a wide range of applications for online education and training. The University Blas Pascal, for example, has recently been granted the official approval for the first five online-only Bachelor degrees in the country. The University is currently expanding its online education programs to other countries in the region.

This and other national Internet-related programs will probably be pushed forward with the new administration of Fernando de la Rúa, the recently elected President, who has shown a strong commitment to the Internet while he was mayor of the city of Buenos Aires. One example is the plan to move all public procurement to the Internet. The aim of the initiative is to increase the efficiency, productivity, and transparency in the procurement process of the national administration.<sup>42</sup>

## **8. Conclusion**

The world is moving at a rapid pace toward the much heralded information society. Digital convergence has found a viable open public platform. This global platform — the Internet — has come to change human societies in radical and unprecedented ways. Widespread access to the network of networks and its services is becoming a determinant factor in the economic and social development of nations. Most governments around the world are seeking ways to promote the growth of the Internet and the services that flow through it.

This case study has presented the concrete experience of Argentina and highlighted the fact that adequate pricing conditions for both leased lines and local telephony services are crucial to the expansion of Internet services at a national scale. In this particular case it was the intervention by the sector Ministry and the regulator that led to a sharp decline in the prices of both leased lines and local calls to the Internet, opening a period of booming growth in the number of new connections to the Internet.

Cost reductions and infrastructure expansion have also triggered the rise of an active e-commerce marketplace. A considerable number of traditional businesses in the country have moved part or all their operations to the web, while an increasing number of new e-businesses have been set up to profit from the potential of the Internet, not only in the country but in the whole region. Market-driven expansion of the Internet has been supplemented by a strong push by

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<sup>42</sup> A similar project has been implemented by the Buenos Aires city government at the time de la Rúa was its mayor, offering public surveillance in the city's public procurement. Each transaction is currently published in real time over the Internet and companies can go online to be included as new providers and bid for the provision of products and services. A similar initiative has been implemented with considerable success in Mexico City, with a system called CompraNet.

government, which has launched a massive project to install more than 1000 community centers connected to the Internet in low income and remote communities.

The road ahead, however, calls for further reforms to set in place an Internet-friendly environment where the Net can thrive on its own. According to actors in the sector there is still a margin to trim down prices and introduce alternative pricing schemes. Most would agree that creative private sector initiatives should be taking the driving seat in this forthcoming stage of market reform. Yet, there is also considerable consensus that government remains a key player as both the regulator of the sector and as promoter of new technologies and services — a role that can be played by becoming a major user of Internet. As in most other parts of the world, the future of the Internet in Argentina heavily depends on the positive synergies that private/public sector partnerships can generate. Whether the country can sustain and even increase the pace of growth achieved in recent years, is something that will depend significantly on how well private/public partnerships respond to the opportunities.

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